

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 1104-2	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US05/04811	International filing date ( <i>day/month/year</i> ) 16 February 2005 (16.02.2005)	(Earliest) Priority Date ( <i>day/month/year</i> ) 17 February 2004 (17.02.2004)
Applicant HULIN, MICHAEL J.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 1 sheets.



It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the Report

- a. With regard to the language, the international search was carried out on the basis of:



the international application in the language in which it was filed.



a translation of the international application into \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

- b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☒ Unity of invention is lacking (See Box No. III)

4. With regard to the title,



the text is approved as submitted by the applicant.



the text has been established by this Authority to read as follows:

5. With regard to the abstract,



the text is approved as submitted by the applicant.



the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 2



as suggested by the applicant.



as selected by this Authority, because the applicant failed to suggest a figure.



as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

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## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:  
Please See Continuation Sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any additional fees.
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.: 1-53 and 75-86
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐

The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐

The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐

No protest accompanied the payment of additional search fees.

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## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A22C 29/02

US CL. : 452/2

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 452/1-5, 7-13, 18; 99/324, 357, 360, 403, 404, 535, 539, 540, 567, 568

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3,594,860 A (Nelson et al.) 27 July 1971 (27.07.1971), figures 1-2.	1, 45, 47, 51-53
Y	US 4,862,794 A (Lapeyre et al.) 05 September 1989 (05.09.1989), figure 1.	2, 15-17, 19
Y	US 6,372,275 B1 (Hulin) 16 April 2002 (16.04.2002), column 7 lines 31-49, column 8 lines 10-67, column 9 lines 1-35 and figures 4-6.	14, 21-24, 28, 30-31, 38-40, 49
Y	US 4,769,870 A (Hansen et al.) 13 September 1988 (13.09.1988), figure 2.	43
Y	US 5,246,118 A (Mosher) 21 September 1993 (21.09.1993), figure 1,	44
Y	US 4,916,775 A (Gallant) 17 April 1990 (17.04.1990), figure 1.	3, 5-9, 20
Y	US 4,829,636 A (Caroon) 16 May 1989 (16.05.1989), figures 1-3.	18
Y	US 4,966,072 A (Ellis-Brown) 30 October 1990 (30.10.1990), figure 3.	25-26
Y	US 5,651,731 A (Gorans et al.) 29 June 1997 (29.07.1997), column 3 lines 9-18, column 4 lines 52-67 and column 5 lines 1-25.	29, 33-35



Further documents are listed in the continuation of Box C.



See patent family annex.

Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

23 November 2005 (23.11.2005)

Date of mailing of the international search report

19 DEC 2005

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

David Parsley

Telephone No. (571) 272-6890

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## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,532,677 A (Wenstrom et al.) 06 August 1985 (06.08.1985), figure 4.	41-42
Y	US 4,660,468 A (Goldahn) 28 April 1987 (28.04.1987), figure 1.	10-12
Y	US 3,665,555 A (Willis) 30 May 1972 (30.05.1972), column 7 lines 23-33.	13
Y	US 6,117,003 A (Brinson) 12 September 2000 (12.09.2000), column 3 lines 10-33.	36-37
Y	US 6,248,010 B1 (Sirgo et al.) 19 June 2001 (19.06.2001), figures 1-8.	75-79

## BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

The International Search Authority has found 8 inventions claimed in the International Application covered by the claims indicated below: This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-53 and 75-86, drawn to an apparatus and system for cooking, drying and peeling shellfish products.

Group II, claim(s) 54-68, drawn to a method for processing raw seafood product.

Group III, claim(s) 69, drawn to a broth processing system.

Group IV, claim(s) 70, drawn to a food flavoring byproduct system.

Group V, claim(s) 71-72, drawn to a peeling device in communication with a dryer.

Group VI, claim(s) 73, drawn to a spiral conveyor dryer in communication with a peeling device.

Group VII, claim(s) 74, drawn to a stacked conveyor dryer in communication with a peeling device.

Group VIII claim(s) 87-83, drawn to a method for producing shellfish flavored oil.

This International Searching Authority considers that the international application does not comply with the requirements of unity of invention (Rules 13.1, 13.2, 13.3) for the reasons indicated below:

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group I has a special technical feature of an automated means for dumping shellfish product which is different than the special technical feature of the invention of Group II which is delivering raw seafood product to a heated receptacle having a brine solution therein.

The inventions listed as Groups I and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group I has a special technical feature of an automated means for dumping shellfish product which is different than the special technical feature of the invention of Group III which is the brine solution from a seafood broiler is transported to holding tanks prior to packaging as a brine broth.

The inventions listed as Groups I and IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group I has a special technical feature of an automated means for dumping shellfish product which is different than the special technical feature of the invention of Group IV which is the brine solution is extracted from the heated receptacle and injected into a heated furnace or hopper as a fine mist where it is immediately dehydrated.

The inventions listed as Groups I and V do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group I has a special

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technical feature of an automated means for dumping shellfish product which is different than the special technical feature of the invention of Group V which is a screen sweeper/screened aperture providing access.

The inventions listed as Groups I and VI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group I has a special technical feature of an automated means for dumping shellfish product which is different than the special technical feature of the invention of Group VI which is the spiral dryer cycles the product from a low end to a high end as heated air is passed over the product before dropping the product to the low end.

The inventions listed as Groups I and VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group I has a special technical feature of an automated means for dumping shellfish product which is different than the special technical feature of the invention of Group VII which is the stacked conveyor dryer moves the product form one level to another as heated air is passed over the product.

The inventions listed as Groups I and VIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group I has a special technical feature of an automated means for dumping shellfish product which is different than the special technical feature of the invention of Group VIII which is extracting flavor form the pulverized byproduct into the neutral oil.

The inventions listed as Groups II and III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group II has a special technical feature of delivering raw seafood product to a heated receptacle having a brine solution therein which is different than the special technical feature of the invention of Group III which is the brine solution from a seafood broiler is transported to holding tanks prior to packaging as a brine broth.

The inventions listed as Groups II and IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group II has a special technical feature of delivering raw seafood product to a heated receptacle having a brine solution therein which is different than the special technical feature of the invention of Group IV which is the brine solution is extracted from the heated receptacle and injected into a heated furnace or hopper as a fine mist where it is immediately dehydrated.

The inventions listed as Groups II and V do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group II has a special technical feature of delivering raw seafood product to a heated receptacle having a brine solution therein which is different than the special technical feature of the invention of Group V which is a screen sweeper/screened aperture providing access.

The inventions listed as Groups II and VI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group II has a special technical feature of delivering raw seafood product to a heated receptacle having a brine solution therein which is different than the special technical feature of the invention of Group VI which is the spiral dryer cycles the product from a low end to a high end as heated air is passed over the product before dropping the product to the low end.

The inventions listed as Groups II and VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group II has a special technical feature of delivering raw seafood product to a heated receptacle having a brine solution therein which is different than the special technical feature of the invention of Group VII which is the stacked conveyor dryer moves the product form one level to another as heated air is passed over the product.

The inventions listed as Groups II and VIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group II has a special technical feature of delivering raw seafood product to a heated receptacle having a brine solution therein which is different than the special technical feature of the invention of Group VIII which is extracting flavor form the pulverized byproduct into the neutral oil.

The inventions listed as Groups III and IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group III has a special technical feature of delivering raw seafood product to a heated receptacle having a brine solution therein which is different than the special technical feature of the invention of Group IV which is the brine solution is extracted from the heated receptacle and injected into a heated furnace or hopper as a fine mist where it is immediately dehydrated.

The inventions listed as Groups III and V do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group III has a special technical feature of delivering raw seafood product to a heated receptacle having a brine solution therein which is different than the special technical feature of the invention of Group V which is a screen sweeper/screened aperture providing access.

The inventions listed as Groups III and VI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group III has a special technical feature of delivering raw seafood product to a heated receptacle having a brine solution therein which is different than the special technical feature of the invention of Group VI which is the spiral dryer cycles the product from a low end to a high end as heated air is passed over the product before dropping the product to the low end.

The inventions listed as Groups III and VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group III has a special technical feature of delivering raw seafood product to a heated receptacle having a brine solution therein which is different than the special technical feature of the invention of Group VII which is the stacked conveyor dryer moves the product from one level to another as heated air is passed over the product.

The inventions listed as Groups III and VIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group III has a special technical feature of delivering raw seafood product to a heated receptacle having a brine solution therein which is different than the special technical feature of the invention of Group VIII which is extracting flavor from the pulverized byproduct into the neutral oil.

The inventions listed as Groups IV and V do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group IV has a special technical feature of the brine solution is extracted from the heated receptacle and injected into a heated furnace or hopper as a fine mist where it is immediately dehydrated which is different than the special technical feature of the invention of Group V which is a screen sweeper/screened aperture providing access.

The inventions listed as Groups IV and VI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group IV has a special technical feature of the brine solution is extracted from the heated receptacle and injected into a heated furnace or hopper as a fine mist where it is immediately dehydrated which is different than the special technical feature of the invention of Group VI which is the spiral dryer cycles the product from a low end to a high end as heated air is passed over the product before dropping the product to the low end.

The inventions listed as Groups IV and VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group IV has a special technical feature of the brine solution is extracted from the heated receptacle and injected into a heated furnace or hopper as a fine mist where it is immediately dehydrated which is different than the special technical feature of the invention of Group VII which is the stacked conveyor dryer moves the product from one level to another as heated air is passed over the product.

The inventions listed as Groups IV and VIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group IV has a special technical feature of the brine solution is extracted from the heated receptacle and injected into a heated furnace or hopper as a fine mist where it is immediately dehydrated which is different than the special technical feature of the invention of Group VIII which is extracting flavor from the pulverized byproduct into the neutral oil.

The inventions listed as Groups V and VI do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group V has a special technical feature of a screen sweeper/screened aperture providing access which is different than the special technical feature of the invention of Group VI which is the spiral dryer cycles the product from a low end to a high end as heated air is passed over the product before dropping the product to the low end.

The inventions listed as Groups V and VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group V has a special technical feature of a screen sweeper/screened aperture providing access which is different than the special technical feature of the invention of Group VII which is the stacked conveyor dryer moves the product from one level to another as heated air is passed over the product.

The inventions listed as Groups V and VIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group V has a special technical feature of a screen sweeper/screened aperture providing access which is different than the special technical feature of the invention of Group VIII which is extracting flavor from the pulverized byproduct into the neutral oil.

The inventions listed as Groups VI and VII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group VI has a special technical feature of the spiral dryer cycles the product from a low end to a high end as heated air is passed over the product before dropping

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the product to the low end which is different than the special technical feature of the invention of Group VII which is the stacked conveyor dryer moves the product from one level to another as heated air is passed over the product.

The inventions listed as Groups VI and VIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group VI has a special technical feature of the spiral dryer cycles the product from a low end to a high end as heated air is passed over the product before dropping the product to the low end which is different than the special technical feature of the invention of Group VIII which is extracting flavor from the pulverized byproduct into the neutral oil.

The inventions listed as Groups VII and VIII do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the invention of Group VII has a special technical feature of the stacked conveyor dryer moves the product from one level to another as heated air is passed over the product which is different than the special technical feature of the invention of Group VIII which is extracting flavor from the pulverized byproduct into the neutral oil.